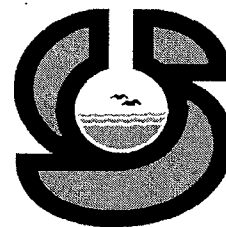


Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: SoundL@aol.com



TRANSMITTAL MEMORANDUM

DATE: February 18, 1999

TO: Gerold Thompson
Alaskan Copper Works
628 Hanford St.
Seattle, WA 98134

PROJECT: 7238 Acid Yard Effluent

REPORT NUMBER: 79117

Enclosed are the test results for one sample received at Sound Analytical Services on February 16, 1999.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

A handwritten signature in black ink that reads "Tom Watson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Tom Watson
Project Manager

SOUND ANALYTICAL SERVICES, INC.

Client Name	Alaskan Copper Works
Client ID:	M78383
Lab ID:	79117-01
Date Received:	2/16/99
Date Prepared:	2/17/99
Date Analyzed:	2/17/99
Dilution Factor	1

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Analyte	Result (mg/L)	PQL	Flags
Hexavalent Chromium	11	0.01	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - CR023
Date Received:	-
Date Prepared:	2/17/99
Date Analyzed:	2/17/99
Dilution Factor	1

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Analyte	Result (mg/L)	PQL	Flags
Hexavalent Chromium	ND	0.01	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID: M78383
Lab ID: 79117-01
Date Prepared: 2/17/99
Date Analyzed: 2/17/99
QC Batch ID: CR023

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Chromium	11	12	-8.7	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID: M78383
Lab ID: 79117-01
Date Prepared: 2/17/99
Date Analyzed: 2/17/99
QC Batch ID: CR023

Hexavalent Chromium by ICP - USEPA Method 7195/6010

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Chromium	11.1	2	13	95	

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE: (253) 922-2310 - FAX: (253) 922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- N: See analytical narrative.
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Alaskan Copper Works
Client ID:	M78383
Lab ID:	79117-01
Date Received:	2/16/99
Date Prepared:	2/17/99
Date Analyzed:	2/17/99
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Hexavalent Chromium by ICP - USEPA Method 7195/6010

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Hexavalent Chromium	11	0.01	